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On the Cover: *Victoria Centre member W. John McDonald set up on the Vancouver Island waterfront and assembled this image of northern star trails in February last year. The assembly is a collection of 30-second images over an 8-hour period through the night. Visible in the lower right are the lights from the homes and ski hills of Vancouver. Boat and plane light trails are also visible in the lower part of the image. John used a Canon T1i camera set at 1600 ISO with a Sigma 10-20-mm f/4 lens operating at 10 mm.*

Journal

The *Journal* is a bi-monthly publication of The Royal Astronomical Society of Canada and is devoted to the advancement of astronomy and allied sciences. It contains articles on Canadian astronomers and current activities of the RASC and its Centres, research and review papers by professional and amateur astronomers, and articles of a historical, biographical, or educational nature of general interest to the astronomical community. All contributions are welcome, but the editors reserve the right to edit material prior to publication. Research papers are reviewed prior to publication, and professional astronomers with institutional affiliations are asked to pay publication charges of $100 per page. Such charges are waived for RASC members who do not have access to professional funds as well as for solicited articles. Manuscripts and other submitted material may be in English or French, and should be sent to the Editor-in-Chief.

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President's Corner

Mary Lou Whitehorne
President, RASC

As I sit down to write this column for the April issue of the *Journal*, spring seems very far away. It's -14 °C outside and 38 cm of snow just fell with a thud. It's Canada in early February! But by the time you read this, we will be approaching the Spring Equinox. The long dark nights of winter will be giving way to the growing light of spring, and the realm of galaxies will swing across our nighttime view of the heavens. When Leo rides high in the south before midnight, I heave a big sigh of relief that we have not somehow become stuck on the winter side of Earth's orbit around the Sun!

The RASC is also closing in on an important anniversary – the first anniversary of our new Executive Director, Deborah Thompson. An Executive Director is a new experience for the RASC, and we are all a little unsure of how things will be different or the same with our new member on the executive team. Yes, even your executive members are still working out how best to make the new order run as smoothly and efficiently as possible.

But, I can say with complete confidence that the management of our business affairs is in very good hands, with new policy, process, and procedure in place. A great deal of work has been done to establish and maintain best-business practices in our National Office. This all-important groundwork is establishing the sturdy foundation we need to steer the RASC toward a strong and vibrant future as both a charity and a membership organization.

As yet, the changes already in place are not obvious to the average member. They are obvious to the Executive Committee that is involved in day-to-day management and decision making for the Society. One of the biggest changes is that the executive is already benefitting from a reduced workload. Deborah is energetic, scrupulous, and dedicated to the interests of the RASC. She is a pleasure to work with and is a tremendous asset to the RASC. Over time, we will all begin to see the differences and benefits of having a professional manager on the job. I have no doubt that she will continue to implement improvements and be a key player in taking the Society from strength to even greater strength in the future.

Switching topics from business to observing, there have been positive developments on the green-laser-pointer front. These are powerful tools for astronomy education and outreach, but they also pose hazards, particularly to aircraft. In recent months, there has been an increase in the incidence of aircraft *flashing* incidents, with arrests and convictions. Some jurisdictions are moving to outlaw the use of these devices or to ban the

Astronomical Art & Artifact

RASC Catalogue of Meteorites — Second Supplement

by R.A. Rosenfeld, RASC Archivist
(randall.rosenfeld@utoronto.ca)

Abstract: A further generous donation has increased the size of the collection and varied its contents, most notably adding fragments of the Tagish Lake (RASC M13) and Whitecourt meteorites (RASC M14), and an NWA lunar achondrite (RASC M16).

Introduction

The RASC Archives have benefitted yet again from the generosity of the anonymous RASC member whose two earlier gifts of meteoritic materials now comprise the majority of the objects in RASC Archive's meteoritical collection (previous material catalogued in Rosenfeld 2009; Rosenfeld 2010). Among the newly added materials are fragments from the Tagish Lake [illegible] (RASC M13) and the Whitecourt [illegible] (RASC M14). The collection now also includes a fragment of a lunar meteorite (RASC M16). The space rocks of Canadian provenance and the lunar meteorite are firsts for the collection. The most visually attractive accession is the polished slice of the Admire pallasite (RASC M17). Also joining them is a fragment of possibly the most studied of all the carbonaceous chondrites, Murchison (RASC M15), well-known for the presence of over 100 amino acids, and still the subject of much meteoritical and astrobiological research.

Also included in the gift are several provisionally named meteorites. Should they be evaluated and approved by the Nomenclature Committee of the International Society for Meteoritics and Planetary Science, they will be formally published in the RASC Catalogue.

Catalogue

The catalogue fields consist of:

1. inventory number;
2. type and origin;
3. provenance;
4. dimensions;
5. weight;
6. form;
7. appearance;
8. state of preservation;
9. bibliography (previous publications of a RASC specimen precede general type citations).

Given the limited size of the collection, a little more detail can be supplied in the fields than is usually the case in catalogues. This is not to be taken as a sign of the relative importance of the specimens in the RASC collection; rather it attests to the opposite. It should also be noted that characterizations of the objects are referred to descriptions of the type specimens, or other properly analyzed specimens in the literature, for none of the RASC specimens have been subject to extensive laboratory analysis. This catalogue has been prepared with the needs of the amateur uppermost, rather than the professional.

Meteorites:

19.

1. RASC M13.20110131;
2. Tagish Lake, Carbonaceous chondrite (C2, ungrouped), British Columbia, Canada (59° 42′16″N, 134° 12′5″W), fall 2000 January 18, 10 kg;
3. Anonymous gift 2011 January 31;
4. 16+ fragments; range of fragment sizes ϕ scale=1–3 (Wentworth size class=very coarse sand to fine sand), largest fragment 0.2x0.18x0.17 cm;
5. 0.005 gr;
6. Irregular forms;
7. Colour range: 5PB 2.5/1 Bluish Black Gley to N 2.5/ Black Gley, with sparse inclusions at 5Y 8/1 White (Munsell);
8. Good, but friable as per this type;
9. Not previously published; Hildebrand & McCausland *et al.* (2006); IMCA *EoM* http://www.encyclopedia-of-meteorites.com/meteorite.aspx?id=23782; *MB* 84 (2000), A217-A218; *MBDB* www.lpi.usra.edu/meteor/metbull php?code=23782

20.

1. RASC M14.20110131;
2. Whitecourt, Iron, medium octahedrite (IIIAB), Whitecourt, Alberta, Canada (53° 59′57″N, 115° 35′51″W), find 2007 July 1, ca. 70 kg;
3. Anonymous gift 2011 January 31;
4. 2 fragments: a) 0.448x0.25x0.15 cm; b) 0.23x0.14x0.08 cm;
5. 0.03 gr;
6. 14 a irregular lanceolate form; 14 b irregular form;
7. 14 a & 14 b each have one polished face (treatment happened prior to their separating from a larger mass); weathering rind on other faces;
8. Stable;
9. not previously published; Kofman, Herd & Froese (2010); IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=47345; MB94 (2008), 1567; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code=47345 (note: the assigning of an official name to this meteorite post-dates the writing of Whyte 2009).

21.

1. RASC M15.20110131;
2. Murchison, Carbonaceous chondrite (CM2), Murchison, Victoria, Australia (36° 37′S, 145° 12′E), fall 1969 September 28, 4.5 kg;

3. Anonymous gift 2011 January 31;
4. 0.36x0.24x0.2 cm;
5. 0.021 gr.;
6. irregular form;
7. Colour range: 2.5Y 2.5/1 Black to 5Y 2.5/1 Black, with sparse inclusions at 5Y 8/6 Yellow (Munsell);
8. Good;
9. Not previously published; Grady (2000), 351-352; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=16875 ; *MB* 48 (1970), 107-108; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code=16875

22.

1. RASC M16.20110131;
2. Northwest Africa 4734 (NWA 4734), Achondrite (lunar), "Northwest Africa," find October 2006, 1.372 kg;
3. Anonymous gift 2011 January 31;
4. 0.30x0.25x0.175 cm;
5. 0.01 gr.;
6. Irregular form;
7. Note: not a monzogabbro;
8. Good;
9. Not previously published; Wang & Hsu (2010), but see meteorites.wustl.edu/lunar/stones/nwa4734.htm; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=45660; *MB* 93 (2008), 478; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code =45660. Possibly paired with LPA 02205 and 02224

23.

1. RASC M17.20110131;
2. Admire, Pallasite (PMG), Admire, Lyons Co., Kansas, USA (38° 42′N, 96° 6′W), find 1881, 180(?) kg;
3. Anonymous gift 2011 January 31;
4. 2.10x1.49x0.20 cm;
5. 1.176 gr.;
6. Slice;
7. Wide faces polished; typical attractive yellow crystalline olivine inclusions in an iron-nickel matrix;
8. Fragile;

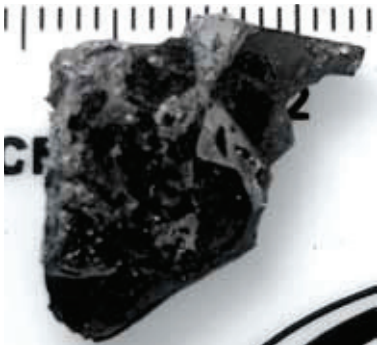

Figure 1 — RASC M17.

9. Not previously published; Grady (2000), 58; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=380; MB 37 (1966), 2; MBDB www.lpi.usra.edu/meteor/metbull.php?code=380

24.

1. RASC M18.20110131;
2. Vaca Muerta, Mesosiderite-A1, Taltal, Antofagasta, Atacama Desert, Chile (25° 45′S, 70° 30′W), find 1861, 3828 kg;
3. Anonymous gift 2011 January 31;
4. 10 fragments; longest fragment 0.57x0.46x0.10 cm; widest fragment 0.549x0.50x0.16 cm; thickest fragment 0.35x0.385x0.20 cm;
5. 0.23 gr.
6. Irregular forms;
7. Weathering crusts;
8. Stable;
9. Not previously published; Grady (2000), 508; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=24142; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code=24142

25.

1. RASC M19.20110131;
2. Tatahouine, Diogenite, Tatahouine, Tunisia (32° 57′N, 10° 25′E), fall 1931 June 27, 12 kg;
3. Anonymous gift 2011 January 31;
4. 3 fragments: a) 0.54x0.35x0.30 cm; b) 0.45x0.38x0.34 cm; c) 0.45x0.15x0.14 cm;
5. 0.131 gr.;
6. Irregular forms;
8. Stable;
9. Not previously published; Grady (2000), 484; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=23884; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code=23884

26.

1. RASC M20.20110131;
2. Gao-Guenie, H5 Ordinary Chondrite, Gao and Guenie, Burkina Faso (11° 39′N, 2° 11′W), fall 1960 March 5 (note: the "second" fall date of April 1960 may be spurious), ? kg;
3. Anonymous gift 2011 January 31;
4. 1.8x1.1x0.35 cm;
5. 1.41 gr;
6. Slice;
8. Fair;
9. Not previously published; Grady (2000), 211; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=10854; *MB* 39 (1970), 91; *MB* 57 (1980), 98; *MB* 83 (1999), A171; *MBDB* www.lpi.usra.edu/ meteor/metbull.php?code =10854

27.

1. RASC M21.20110131;
2. Northwest Africa 6080 (NWA 6080), LL4 Ordinary Chondrite, "Northwest Africa," find 2008, 6.33 kg;
3. Anonymous gift 2011 January 31;
4. 2 fragments: a) 1.025x1.0x0.5 cm; b) 0.3x0.19x0.16 cm;
5. a) 0.667 gr; b) 0.19 gr;
6. Irregular forms;
7. a) has one polished face;
8. Good;
9. Not previously published; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=51489; *MB* 99 (2011) – in preparation; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code=51489

Figure 2 — RASC M20.

28.

1. RASC M22.20110131;
2. Northwest Africa 869 (NWA 869), L 4-6 Ordinary Chondrite, "Northwest Africa," find 2000 (or 2001), 2000 kg;
3. Anonymous gift 2011 January 31;
4. 1.1x0.93x0.77 cm;
5. 1.41 gr;
6. Irregular prolate "spherule";
7. Pebble, with intact fusion crust and discernible regmaglypts;
8. Good;
9. Not previously published; IMCA *EoM* www.encyclopedia-of-meteorites.com/meteorite.aspx?id=31890; *MB* 90 (2006), 1386-1387; *MBDB* www.lpi.usra.edu/meteor/metbull.php?code=31890

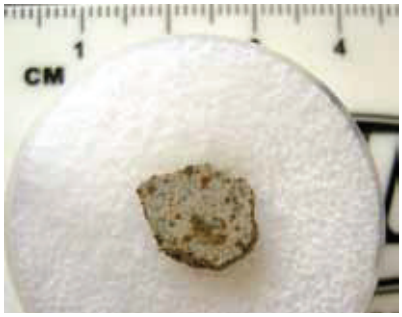

Figure 3 — RASC M21.

Addenda and corrigenda to the original catalogue (Rosenfeld 2009):

A document recently come to light has clarified some of the puzzling issues regarding RASC M1 and RASC MWr2. The document is a receipt on Royal Ontario Museum Mineralogy Department letterhead, dated 1974 December 18, addressed to Robin P. Macfarlane of the RASC, and signed by the then curator of mineralogy, J.A. Mandarino, acknowledging the deposit of the specimen B-151 (=RASC M1). It is not known if the meteorite was deposited at the RASC's request for confirmation of the specimen's identity, or the ROM's, as part of a professional study, or both. It will be recalled that RASC M1 is painted with the inventory number "B-151" (=Bruderheim specimen 151), the same number mentioned in the ROM receipt. That document also bears in hand-written annotations substantially the same text as the worn paper label now associated with RASC MWr2: "Bought from U. of Alberta for/$28. in 1961. Identified Dec. 18th/ 1974 by J.A. Mandarino, Curator/Dept. of Mineralogy R.O.M." (Rosenfeld 2009, 211). These facts unequivocally demonstrate that both the newly discovered ROM receipt as well as the worn paper label now associated with RASC MWr2 clearly refer to RASC M1.

Two conclusions can be drawn from this: 1) Mandarino's professional judgement concerning "B-151" was thoroughly sound; and 2), after the close of 1974, someone in the RASC National Office moved the worn paper label from RASC M1 where it belonged to RASC MWr 2, where it clearly didn't. This was done either in complete ignorance, or with mischievous intent.

Acknowledgements:

The author wishes to thank the donor of the anonymous gift of meteorites for reading over this catalogue, the Specula astronomica minima for the generous loan of lab equipment, and the *Journal's* Editor for his forbearance. This research has made use of NASA's Astrophysics Data System. ✶

Abbreviations:

IMCA *EoM*=International Meteorite Collectors Association. Encyclopedia of Meteorites

LPA=La Paz Icefield

M&PS=Meteoritics & Planetary Science

MB=Meteoritical Bulletin

MBDB=Meteoritical Bulletin Database

NWA=Northwest Africa

Manuscripts:

RASC Archives, receipt for deposit of meteorite specimen B-151 [RASC M1] at the ROM Department of Mineralogy, signed by J.A. Mandarino to Robin P. Macfarlane 1974 December 18

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www.encyclopedia-of-meteorites.com/ (accessed 2011 February 1)

MBDB=Meteoritical Society. *Meteorite Bulletin Database.*

www.lpi.usra.edu/meteor/metbull.php (accessed 2011 February 1)