Aztec Constellations • Retrospective on IYA2009 in Canada
Lunar Observing • Chasing Eclipses • Middleton Mountain Observatory
Walter A. Feibelman • The Very Long Baseline Array
DEPARTMENTS

42 Executive Perspectives
by Mary Lou Whitehorne

44 News Notes/En manchettes
Kemble's Cascade Featured on APOD/Milky Way Hosts
15 Percent of Solar Systems like Ours/Planet Hunters
Score Success/Companion Dwarf found in Big Dipper/
Long Range Plan (2010-2020) in Progress

72 Be...in New Brunswick
by the 2010 GA Committee

82 Astrocryptic Answers
by Curt Nason

83 Society News
by James Edgar

84 Reviews/Critiques
The Lives of Stars

COLUMNS

62 Pen and Pixel: Setting Moon/Cederblad 201/
Mercury/Eclipse Bird
by Luca Vanzella/Stuart Heggie/Rick Stankiewicz/Jay Anderson

74 On Another Wavelength: IR Andromeda
by David Garner

75 Second Light: A Plethora of Planets
by Leslie J. Sage

76 Through My Eyepiece: Brasch’s Law
by Geoff Gabert

77 A Moment With...Dr. Brigette Hesman
by Phil Mozel

78 Gizmos: Binos and Bottles
by Don van Akker

80 Astronomical Art & Artifact: RASC Catalogue
of Meteorites - First Supplement
by R.A. Rosenfeld

On the Front Cover:
Stefano Candelli and Paul Mortfield combined talents to produce this stunning image of a
section of the California Nebula. The image was acquired in October last year at Sierra Remote
Observatories on an RCOS 16” f/8.9 telescope using an Apogee U16M camera. Exposure, in
Hα, SII, and RGB wavelengths, totalled 21.5 hours. Hα was mapped to red and SII to blue;
green was created by using a combination of Hα and SII.
Abstract

A recent donation has increased the size of the collection and varied its contents, particularly in the area of “impactites.” The recent accessions are presented here.

Introduction

The RASC Archives continue to benefit from the generosity of the anonymous RASC member, whose earlier gift of meteoritic materials formed the greater numerical part of the objects in the first installment of this catalogue (Rosenfeld 2009). Among the meteorites in this second installment, the fragments of Zagami (RASC M10) and of Allan Hills 76009 (RASC M11) are the most compelling (and not, incidentally, the physically least prepossessing). What is essentially a modest sprinkling of Martian dust is now housed at the National Office, as part of the RASC Archives.

The bulk of the present additions, in every sense, are the “impactites” (RASC I3-I8). Several museum-quality specimens fittingly boost the specimen count from Canadian sources. The shattercone from the Charlevoix Impact Structure (M15) is particularly notable in this regard (for a good introduction to shattercones, and why they are important, see Bevan 1998).

Anyone curious to explore “on the ground” the Canadian source astroblemes of the impactites catalogued here would be well advised to turn to Chuck O’Dale’s (Ottawa Centre) first-hand accounts: http://ottawa-rasc.ca/wiki/index.php?title=Odale-Articles.

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. 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 samples from 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

10. 1. RASC M10.20091130; 2. Zagami, Martian (shergottite), Zagami (Katsina) Nigeria (11°44’N, 7°5’E), witnessed fall 1962 October 3, ca. 18 kg; 3. Anonymous gift 2009 November 30; 4. Range of fragment sizes φ scale 2-3 (Wentworth size class=medium to fine sand), largest fragment 0.2×0.1×0.05cm; 5. 0.02 gr; 6. Irregular forms; 7. Colour range: N 7/ Light Gley to N 4/ Dark Gray (Munsell); 9. Not previously published; Grady (2000), p. 541; IMCAEM www.encyclopedia-of-meteorites.com/meteorite.aspx?id=30386;

12. RASC M12.20091130; 2. Brahmin, Pallasite, PMG, Gomel’, Belarus (52°30′N, 30°20′E), find 1810, 823 kg; 3. Anonymous gift 2009 November 30; 4. Two fragments: a) 0.462×0.429×0.249 cm; b) 0.599×0.462×0.163 cm; 5. a) 0.065 gr; b) 0.050 gr; 6. a) Irregular triangular form; b) irregular lanceolate form; 7. Typical attractive yellow crystalline olivine inclusions in an iron-nickel matrix; 8. Good state of preservation; 9. Not previously published; Grady (2000), pp. 113-114; IMACEM www.encyclopedia-of-meteorites.com/meteorite.aspx?id=1316; MB 56 (1979), 165; MB 76 (1994), 101; MBDB http://tin.er.usgs.gov/meteor/metbull.php?code=30386

Impacts


14. 1. RASC I4.20091130; 2. Shattercone (Malmian Limestone), Steinheim Impact Structure, Baden-Württemberg (48°41′N, 10°4′E), 15±1Ma; 3. Anonymous gift 2009 November 30; 4. 3.47×2.55×0.91 cm; 5. 7.2 gr; 6. Irregular fan-shaped; 7. Faces with long surface exposure have a light tan patina and occasional surface speckling caused by an overlay of dark material (lichen?). Relatively recently exposed faces are chalk-white in appearance. All surfaces have a typical mild abrasive feel; 8. Good state of preservation; 9. Not previously published; PASSCEID www.unb.ca/passc/ImpactDatabase/images/steinheim.htm; ECIS www.impact-structures.com/germany/steinheim.htm; Skàla & Jakeš (1999)

15. 1. RASC I5.20091130; 2. Shattercone (charnockitic gneiss), Charlevoix Impact Structure, Charlevoix, Quebec (47°32′N, 70°18′W), 342±15Ma; 3. Anonymous gift 2009 November 30; 4. 23.55×15×6 cm; 5. 2250 gr; 6. Specimen displays discernible horsetting (lightly to moderately well-defined striae), indications of a cross-sectional curve, and apical features; 7. Obscuring yellowish light-brown weathering product over most of the faces. Fractures reveal the characteristic light and dark foliated bands of the underlying rock; 8. Good state of preservation; 9. Not previously published; PASSCEID www.unb.ca/passc/ImpactDatabase/images/charlevoix.htm; Robertson (1968)


Addenda and corrigenda to the original catalogue (Rosenfeld 2009)

Whyte (2009), 57-91 should be added to the references for RASC M1. In the catalogue entries for RASC M4 and RASC M6, the speculation regarding the presence of traces of a fusion crust may be misplaced (Rosenfeld 2009, 210). In both cases it is more likely to be a weathering crust. The captions to figures 6 and 7 mistakenly identify the objects as meteorites; they are tektites.

Acknowledgements

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research has made use of NASA’s Astrophysics Data System.

**Abbreviations**

ECIS = Ernstson Claudin Impact Structures  
PAASCEID = Planetary and Space Science Centre, Earth Impact Database  
IMCAEM = IMCA Encyclopedia of Meteorites  
MB = Meteoritical Bulletin  
MBDB = Meteoritical Bulletin Database

**Books and Articles**


**Web Sites**

www.encyclopedia-of-meteorites.com/  
www.impact-structures.com/index.html  
ottawa-rasc.ca/wiki/index.php?title=Odale-Articles  
www.unb.ca/passc/ImpactDatabase/NorthAmerica.html  

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**Astrocryptic Answers**

*by Curt Nason*

The solution to last issue’s puzzle