

J.L.E. Dreyer

by David M.F. Chapman (dave.chapman@ns.sympatico.ca)

Beginning amateur astronomers are introduced typically to the deep sky (star clusters, nebulae, and galaxies) through observing the 110 objects in the Messier catalogue. Advanced observers move on to the New General Catalogue (NGC), which includes all the M-objects, and much more, 7840 objects in all. The NGC is certainly more “general” than the Messier catalogue, but it isn’t so “new” anymore, having been first published in 1888. This is the story of the man who compiled the NGC: Johan Ludwig Emil Dreyer, whose 150th birthday takes place this March.

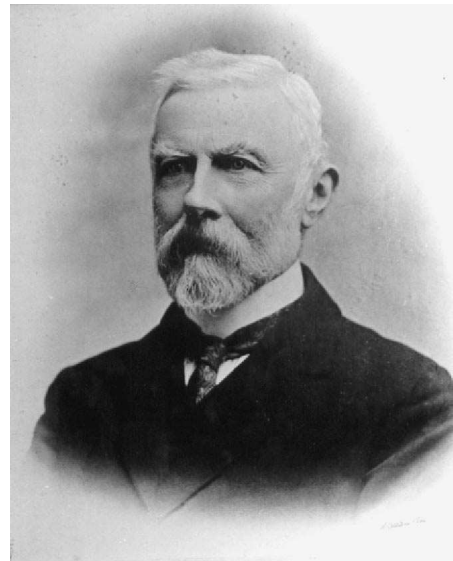
J.L.E. Dreyer was born in Copenhagen Denmark, on March 13, 1852. As a schoolboy, he excelled not only in science, but also in history, both of which contributed to his career achievements in astronomy and the history of science. As a young man, he moved to Ireland, where he assisted Lord Rosse (1800–1867) at Birr Castle, observing with the 183-cm reflecting telescope *Leviathan of Parsonstown*. Lord Rosse is best known for observing and sketching the spiral structure of the aptly named Whirlpool Galaxy (M51 or NGC 5194/5) through this telescope. For astronomy trivia lovers: Lord Rosse named the Crab Nebula in the constellation Taurus (M1 or NGC 1952). Scientific work continues at Birr Castle to this day under the patronage of the current Earl of Rosse, and there is a wealth of information at their Web site www.birrcastle.com/birr/general/

Following an appointment as assistant at Dunsink Observatory on the outskirts of Dublin, Dreyer became Director of the Armagh Observatory in 1882, a post he retained until 1916. The previous Director was Thomas Romney Robinson

(1793–1882), the inventor of the cup anemometer for measuring wind speed. Robinson had begun a campaign to obtain government support for the financially stricken observatory. Dreyer was successful in carrying on Robinson’s campaign, obtaining a grant of 2000 pounds. He used this to purchase a 25.4-cm refracting telescope built by Howard Grubb (1844–1931). This telescope is now used only occasionally, and not for serious astronomy, however Armagh Observatory currently is raising funds for its restoration. Both Dunsink Observatory and Armagh Observatory have active research and public programmes; their web sites are www.dunsink.dias.ie and www.arm.ac.uk, respectively.

Dreyer’s enduring legacy to astronomy was the compilation and publication of the *New General Catalogue of Nebulae and Clusters of Stars* (1888). The “New” in the title acknowledges that Dreyer built upon the 5079 observations of William Herschel and John Herschel, published in the *General Catalogue* (1864). Dreyer revised, corrected, and enlarged the GC, including contributions from several contemporary astronomers, paying particular attention to the accurate positions made possible by improved instrumentation. The NGC contains 7840 deep-sky objects, and continues to be a standard reference for amateur and professional astronomers alike. Dreyer followed up the NGC with the supplementary Index Catalogues: IC-I in 1895 and IC-II in 1908. The ICs listed newer, fainter objects, and brought the object count total to 13,226.

While at Armagh, Dreyer also participated in the study of the distances to the spiral nebulae such as M51. Using



J.L.E. Dreyer, author of the *New General Catalogue of Nebulae and Clusters of Stars* (1888), which continues to be a standard reference for astronomers today (photograph courtesy of Armagh Observatory).

his precision telescope, he attempted to measure the parallax of the nebulae. That is, he attempted to measure the tiny apparent motion of the nebulae against the background star field that would be induced by the Earth’s annual motion around the Sun, if the nebulae were much closer than the stars themselves. His null result provided strong evidence that the nebulae are distant objects, outside our own galaxy. This hypothesis was confirmed by 20th century astronomers.

Dreyer is also known as a historian of science. Remarkably, the visual observations of the fellow Dane Tycho Brahe (1546–1601) had never been properly published and made available to the general public, despite the fact that these observations are the foundation upon which Johann Kepler (1571–1630) based

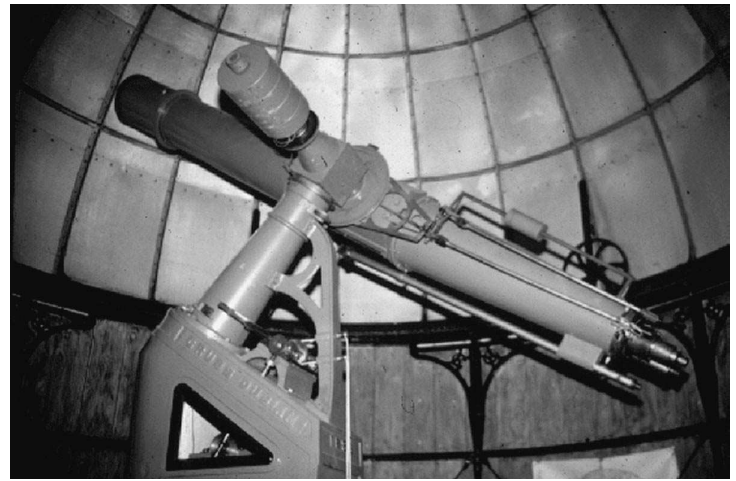
his laws of planetary motion. Dreyer published a biography of Brahe in 1890 and went on to publish 15 volumes of his observations, taken from records at the Royal Library in Copenhagen.

In 1906, Dreyer published *History of the Planetary Systems from Thales to Kepler*. This is a comprehensive history of astronomy before the time of Isaac Newton, and is still in print today under the title *A History of Astronomy from Thales to Kepler* (Dover, New York, 1953). I confess that I have had a copy of this in my library for some time (thanks to my wife's taking a first-year astronomy course at U of T), but I had not connected the author with the NGC until now!

By 1916, the funding for astronomical research at Armagh Observatory had declined substantially, and Dreyer went to Oxford, where he finished his days completing his work on Tycho Brahe. Dreyer received several professional distinctions in his lifetime: a Gold Medal from Copenhagen in 1874, the Gold Medal of the Royal Astronomical Society in 1916, and President of the Royal Astronomical Society (1923–1925). In 1875 he married Katherine Tuthill, an Irish lady from

Kilmore, County Limerick. They had one daughter and three sons, one of whom commanded a battleship at the Battle of Jutland and rose to the rank of admiral in the Royal Navy. J.L.E. Dreyer died in Oxford on September 14, 1926.

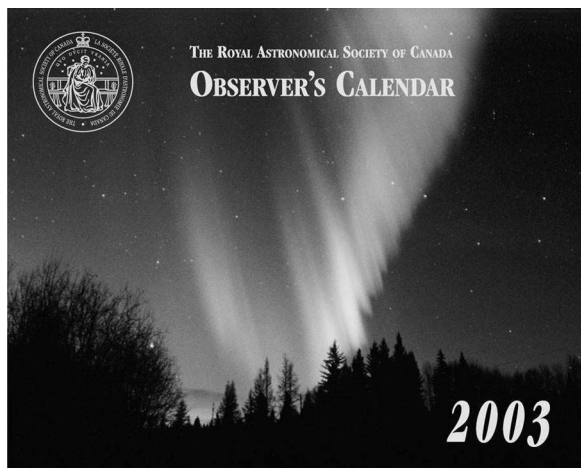
For more information on deep-sky objects, see page 258 of the *RASC Observer's Handbook 2002* for "The Messier Catalogue" and page 262 for "The Finest NGC Objects." Note that there are certificates for RASC members who observe all 110 objects on either list. Keeners may be interested in the NGC/IC Project, an ongoing professional/amateur collaboration, whose Web page is www.ngcic.org ●



The 25.4-cm (10-inch) Grubb refractor at Armagh Observatory used by Dreyer for positional measurements of nebulae for the New General Catalogue, and still in occasional use today (photograph courtesy of Armagh Observatory).

David Chapman is a Life Member of the RASC and a past President of the Halifax Centre. Visit his astronomy page at www3.ns.sympatico.ca/dave.chapman/astronomy_page

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Prints, negatives or slides, CDs, or disks (1.44 megabyte floppies, 100 megabyte Zip disks) should be sent to:

Rajiv Gupta
2478 1st. Ave. W.
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so as to arrive by **April 15, 2002**. For further information about submissions, please contact me by e-mail or by phone at 604-733-0682.

Rajiv Gupta
Editor, *RASC Observer's Calendar*