

Showpieces of Class IV

Planetary Nebulae

Listed below in alphabetical order by constellation are 29 of the most interesting objects in Herschel's Class IV. Following the Herschel designation itself is the corresponding *NGC* number in parentheses, its Right Ascension and Declination (for Epoch 2000.0), the object's actual type (which may differ from the Class Herschel assigned it to), its visual magnitude, angular size in minutes (') or seconds (") of arc, and Messier or Caldwell number plus popular name if any. Next is a translation of Sir William's shorthand description (in italicized quotes) taken from the *NGC* itself, followed by comments from the author. These include directions for finding each object by sweeping for it, just as Herschel himself originally did.

Andromeda

H IV-18 (NGC 7662): 23 26 + 42 33, planetary nebula, 8.5, 32" × 28", = Caldwell 22/Blue Snowball. *"Remarkable, a magnificent or otherwise interesting object, planetary or annular nebula, very bright, pretty small, round, blue."* This gem is one of the brightest planetaries in the sky. Looking like a small blue dot in a 4-inch glass, it is quite vivid in an 8-inch glass. A 12-inch glass shows an annular or ring-like structure with a very faint 13th-magnitude star in the central void. Some observers claim this nucleus is variable since it is sometimes visible and sometimes not, but this has been attributed to changing seeing conditions. The nebula's hue has also been described as cobalt blue and bluish-green, but most see it as a pure blue ball – resulting in its popular name. It is easily located by sweeping along a line joining the stars τ and θ Andromedae, due N of the Great Square of Pegasus. You will find it in the same wide eyepiece field as the star 13 Andromedae, which lies less than 30' to the NE. This celestial Snowball is some 5,600 light-years from us, positioned on the edge of the Milky Way where it courses through Andromeda (Fig. 6.1).

Aquarius

H IV-1 (NGC 7009): 21 04 – 11 22, planetary nebula, 8.3, 25" × 17", = Caldwell 55/Saturn Nebula. *"Remarkable, a magnificent or otherwise interesting object, planetary nebula, very bright, small, elliptic."* Even brighter and more striking than H IV-18 is this magnificent, intensely greenish-blue cosmic egg. Easily spotted



Fig. 6.1. H IV-18 (NGC 7662) is known as the Blue Snowball since it appears distinctly icy-blue to most observers (others seeing it as greenish-blue in color). Among the brightest planetaries in the sky, it is a fascinating sight in telescopes of all sizes. In large instruments like those Herschel used, it is truly an amazing sight! Courtesy of Mike Inglis.

just 2° due W of ν Aquarii, it is obvious even in a 3-inch glass and is a fascinating sight in 6-inch and larger telescopes. The ansae – or edge-on, ring-like extensions to the disk – need at least a 10-inch on a dark steady night to glimpse. The featureless disk itself has an eerie fluorescent radiance to it that is obvious in all apertures. There is actually a 12th-magnitude central star present, but it is all but drowned out by the brightness of the nebula itself. Note that Herschel mentioned neither the ansae nor the star. The Saturn Nebula is truly an amazing sight as seen in a 12- to 14-inch scope and the view in observatory-class instruments is quite beyond words. This was the first member of its exalted class to be discovered by Sir William – he must have been quite thrilled with what he had unexpectedly come across while sweeping the sky in Aquarius, and it surely encouraged him to search for more of its kind! This gem lies at a distance of 3,000 light-years from us (Fig. 6.2). (The dim globular cluster M72 and the little asterism M73 are located just a few degrees to the SW.)

Camelopardalis

H IV-53 (NGC 1501): 04 07 + 60 55, planetary nebula, 11.9, $55'' \times 48''$, Oyster Nebula. “Planetary nebula, pretty bright, pretty small, very little extended, 1' diameter.” Deriving its name from its appearance on large-image-scale, short-exposure photographs, this faintish bluish-white disk looks like a pale gray