

Preface

Planetary nebulae are among the diverse forms of astronomical objects available for amateur study and may be some of the most inspiring sights nature has to offer. Seldom is there a group with such a range of shapes, sizes and colors that have particular idiosyncrasies from object to object. Planetary nebulae are fascinating, beautiful and enchanting; what could be more wonderful than contemplating these small celestial objects, realizing that 1 day our Sun may join this band of heavenly entities? Their ethereal nature, short lifetime and range of forms make observing them a most pleasing study.

I have been entranced by them from a young age and can still remember my first look at the famous ‘Dumbbell’ Nebula, Messier 27, through a small refractor I had purchased from a friend. It was a puff of gas, blue-gray in color with a definite indentation on both sides nestled in a field of fainter stars, yet overflowing and seeming to envelop a few. I was hooked; since then, all planetaries have filled me with a delight that is not fully shared with other objects. Yes, I enjoy looking at faint galaxies, bright nebulae and majestic star clusters, but planetary nebulae are still my favorite objects and the ones I preferentially seek out while observing, no matter what telescope I am using. I am fortunate in that my life in both amateur and professional astronomy overlaps our increasing understanding of these lovely phenomena – an understanding that complements my frequent views of faint smudgy forms almost lost in the darkness of the midnight sky.

I hope that this volume will provide the tools necessary to start searching for these wonderful entities. It does not matter what the aperture of your telescope is or how frequently you observe, there are enough bright objects included in this book to please and delight most observers, and hopefully the illustrations will satisfy an armchair astronomer. I have attempted to strike a balance between easily visible objects that can be seen in any telescope or binoculars, to nebulae that are a direct challenge to those with large aperture equipment. With over 1,000 objects to choose from, the enclosed observing list represents just 10% of the number that could theoretically be seen or imaged, although it is fair to report that this 10% probably represents the best of the catalogues for amateur study.

I have also included an historical and physical analysis of planetary nebulae in order that the reader has a ready volume covering both observational and astrophysical aspects of the subject, which will give added understanding and impetus to the search. I find that when teaching students, the ability to see a faint or fuzzy blob of light is augmented by the fuller physical understanding of its intrinsic nature, leading to a greater appreciation for the object. How often have we shown someone a celestial delight we consider significant, only to have that observer disparage the eyepiece view? Observing any deep sky object with relatively small telescopes is not going to reveal a professional, observatory quality image, but this lack can be turned to our advantage by imparting some fore knowledge on the

inherent nature of the item viewed, enabling an appreciation of cosmic distance, scale and power from our fleeting Earthly platform.

I have also included within the finder maps of some objects several additional planetary nebulae as they were shown in *Sky Map Lite*. These P-K nebulae may become challenge objects for observers wishing to go beyond the range of this book, and any information on them may be gleaned from the P-K catalogue included here or from sky chart programs or the Internet.

In the final analysis, I want observers to enjoy their experiences in hunting down these wonderful nebulae and discovering them for themselves. Our universe is not something that can be fully appreciated by superlatives, by numbers or formulae or by concentrating on specifics; it is something to be sensed, experienced, savored and valued. I especially feel this way when observing planetary nebulae. The great American poet Walt Whitman, conscious of such emotions penned:

When I heard the learned astronomer,
 When the proofs, the figures, were ranged in columns before me,
 When I was shown the charts and diagrams, to add, divide, and measure them,
 When I sitting heard the astronomer where he lectured with much applause in
 the lecture-room,
 How soon unaccountable I became tired and sick,
 Till rising and gliding out I wandered off by myself,
 In the mystical moist night-air, and from time to time,
 Looked up in perfect silence at the stars.

(Leaves of Grass 1882)

I hope this small book will help one to grow in knowledge and appreciation of one striking facet of the universe around us.

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