

## Preface

Our small place in space — this planet Earth — together with Sun and other planets of our solar system and their many moons is located about two-thirds from the center of the disk-shaped galaxy that we know as the Milky Way. When we look toward its center on a clear night what we see is the faint luminosity of billions of stars that make up this galaxy.

There are other galaxies too, far away, that look to our naked eyes just like any other star. But they too contain billions of stars. From our vantage point on Earth, orbiting a rather insignificant star that we call Sun, located in the Milky Way Galaxy in one of its many solar systems — we gaze in wonder.

At last, I have come to that stage in life and career that I can put aside the urge to understand some little details, however fundamental they may be in the edifice of a particular science — in my case nuclear and astrophysics — and look to the grander scale of our place in the universe with its Sun and planets and their many moons stretching far away. I tell, too, the story of life, its needs, and vicissitudes on Earth and in its seas, as well as other possible habitable zones on other planets and on the larger moons of some of them. It is a story that often as children we yearn to comprehend, and concerning which, as adults, we may achieve a degree of understanding.

I write with the urge of writing, because it makes me happy. I step eagerly to my desk in the morning to research what the experts in many special fields of science have learned. I try to understand what they so painstakingly have researched over the decades, making sense of the pieces and then synthesizing what I have learned with some poesy I hope, to please myself and the reader like me — not an expert. In other words I write for the general lay reader, college students taking a general science course, as well as scientists in other fields. And in the evening, tired, I leave, only to take up where I left off the next day. Some days though, when the Sun shines warmly I leave early; we

were made to love the Sun and its life-giving rays of energy. Sunday is my day of rest from study and writing.

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A faint nebula in the northern hemisphere is associated with the bright star Rigel in the constellation of Orion. The Witch Head Nebula glows primarily by reflected light. Credit and permission: John C. Mirtle.