Sweep on through glittering star fields and long for endless night! More nebulae, more stars. Here a bright and beautiful star overpowering in its brilliancy, and there close to it a tiny point of light seen with the greatest difficulty, a large star and its companion. How plentiful the stars now appear. Each sweep increases their number. The field is sprinkled with them, and now we suddenly sweep into myriads and swarms of glittering, sparkling points of brilliancy — we have entered the Milky Way. We are in the midst of millions and millions of suns — we are in the jewel house of the Maker, and our soul mounts up, up to that wonderful Creator, and we adore the hand that scattered the jewels of heaven so lavishly in this one vast region. No pen can describe the wonderful scene that the swinging tube reveals as it sweeps among that vast array of suns.

—Edward Emerson Barnard, The Nashville Artisan (1883)

Even from the northern hemisphere, the Milky Way, seen from a clear dark site, exhilarates with its magnificence. A northern hemisphere witness to its grandeur, the Japanese haiku writer and pilgrim Basho (1644-94), looked across the sea to Sado Island, where political exiles were confined, and exclaimed:

High over wild seas,
Surrounding Sado Island —
The River of Heaven!¹

The River of Heaven was, of course, the Milky Way. Basho wrote that haiku on the eve of Tanabata Matsuri (the “Evening of the Seventh”), a Japanese summer star-festival celebrating the reunion (for one night) of Orihime and Hikoboshi, represented by the stars Vega and Altair. According to a legend originally imported into Japan from China, these personali-
ties were separated from one another by the river Amanogawa (literally, the “heavenly river,” i.e., the Milky Way) but were permitted to meet again for one night a year, on the seventh day of the seventh lunar month of the luni-solar calendar.2

For the lover of the Galaxy, it is not separation that is the difficulty; it is obscurcation. The overpowering lights of cities keeps him or her from the objects of desire. Though the center of the Galaxy (best seen from the Southern Hemisphere, since it lies at 20 degrees south latitude) is, rather surprisingly, bright enough to cast a shadow on a clear dark night—and is one of only a few celestial objects able to do so; the others include the Moon, Venus, Jupiter, and Mars at its very best—it cannot be seen at all from cities. It glows with a subtle light, only fifty percent brighter than the ambient background of the sky brightness furnished by the Zodiacal Light and airglow. City lights brighten the back-sky glow by factors of 10 to 100 or more, causing the Milky Way to fall below the threshold of visibility. Thus the Milky Way for the city-dweller resembles a Renaissance fresco whose vivid hues are obscured under a centuries-old coat of grime and soot.

Sadly, the glories of the night sky have been expunged by light pollution in the vast cities in which most of the world’s population lives. The habitat of amateur astronomers is vanishing. It is probably fair to say that most of the world’s population has never experienced a pristine view of the Milky Way. No wonder those who take an interest in such things are now a graying, affluent, and predominantly male demographic (as surveys of the readership of popular astronomy magazines like Sky & Telescope and Astronomy show over and over) whose enthusiasm was sparked in another era and who can afford to travel to dark sites with portable telescopes to feed their appetite for galactic wonders.

One can well appreciate their determination to do so, for under conditions of transparent and dark skies, the Milky Way opens up as a grand and glorious avenue of bright stars, powdered with open clusters, diffuse nebulae, and—most wonderful of all—a fretted lattice work of strange dark markings. Under such conditions, the Galaxy—our own vast star-system—presents what is probably the most awe inspiring and sublime sight a mortal can behold.

The structure of the Milky Way Galaxy, which was already hinted at in Herschel’s snapping alligator depiction, as mentioned in early chapters, resembles two fried eggs clapped together. By this analogy, the yolks make up the “bulge.” Luminous with the massed effect of billions of small, old, distant suns, it extends across some 30 degrees of the sky. Dark markings superimposed upon the distant stars form an intricate meshwork and include a vast tongue-like extension to the south, extending another 30