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John C. Barentine

Mystery of the Ashen Light of Venus

Investigating a 400-Year-Old
Phenomenon

 Springer

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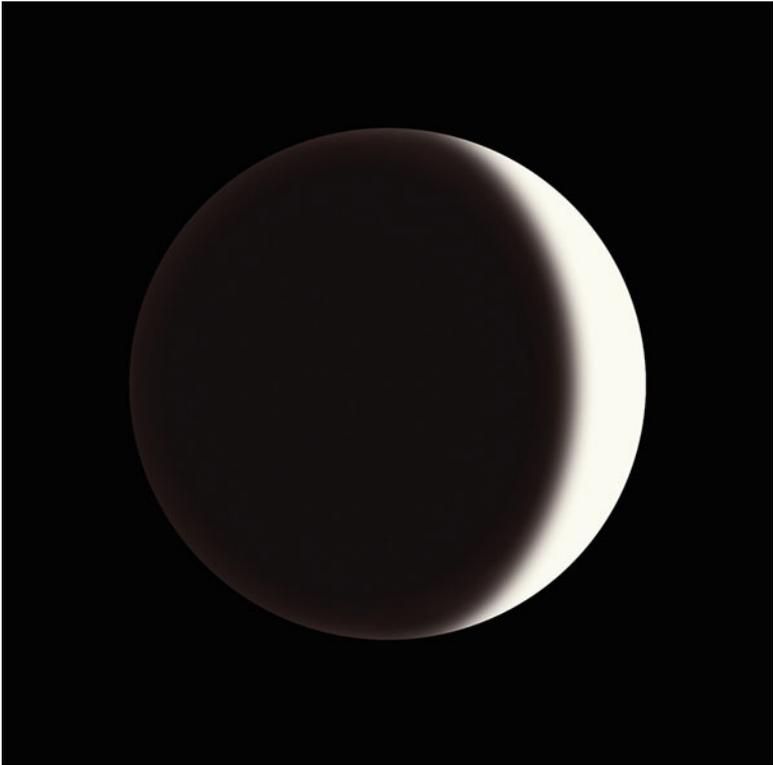
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Cover illustration: A painting by astronomer William K. Hartmann, who, with fellow astronomer Dale P. Cruikshank, followed Venus telescopically for several days as it passed between Earth and Sun. On one those days, they both thought they could see a faint discoloration of Venus's dark side, as depicted in this painting. © W. K. Hartmann, Senior Scientist Emeritus, Planetary Science Institute, Tucson

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*This book is dedicated to the memory of Richard Baum
(1930–2017), a fine amateur astronomer whose
contributions to the history of its subject over many
decades have so informed my work.*

Acknowledgments

As much as it is a cliché, it is worth reiterating that no substantial piece of writing is composed in a vacuum otherwise inhabited only by the author. There are many people I am glad to thank for their assistance and counsel throughout the process by which this book came together.

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The decision to embark on this project might not have been made without the advice of the British amateur astronomer and Ashen Light eyewitness, Richard Baum, whom I was fortunate to get to know right at the very end of his life. In my last correspondence with him in May 2017, just months before his death, Richard encouraged me to make the book "stimulating to thought,"

otherwise readers with pre-existing opinions about the Ashen Light would dismiss it, thinking there was nothing further about the subject to consider. “I have seen this only too often in my 87 years,” Richard wrote me. “A saddening process in fact because they fail to realise the importance of what they pass over.” I wish Richard lived long enough to see this book published, as I would have loved to know whether he felt I did justice to the topic.

I appreciate both that Springer took a chance on this topic and that Hannah Kaufman was my editor and Dinesh Vinayagam my production manager. Once again, it was a smooth and trouble-free experience bringing a title from concept to publication.

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Tucson, AZ, USA
February 2021

John C. Barentine

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Introduction

In the fading light minutes before sunset, I rack the telescope focus in and out before obtaining a sharp view of the Evening Star that has dominated twilight for the past several months. Each late afternoon, it is the first “star” visible in the deep blue of the western sky. I follow it for the next few hours, gradually lower toward the horizon, as the light of day fades and the brilliant crescent seems to shine more brightly. Next to other observations about it, I scrawl yet again in my notebook.

“Ashen Light not suspected.”

It is, in fact, the same observation as every time I observed Venus during the last thirty years. The words are a reference to the appearance of faint light emanating from the night side of the planet, coming from a place where one has no expectation of seeing any light. It is pale and often devoid of color, or nearly so. It is the *lumière cendrée* of the French language, and the *Graulicht* of German. As ghostly a name as it is a spectre haunting the history of astronomy, in English it is the Ashen Light.

“Night side entirely dark.”

Reports by other reputable observers are too numerous, and some of those observers too reputable, for me to completely dismiss the notion that *something* occasionally happens on the hemisphere of Venus facing away from the Sun that yields direct and very real light, the quiet rain of which falls partly into the telescopes of Earthbound observers, tickling their retinas in just the right way as to lead their brains to believe that they have seen something as real as the planet itself. Some argued passionately, to their very last days, for the objective

certainty of what they saw. But others insisted with equal passion that they *never* saw it, even after a lifetime of dedicated Venus watching.

“Region away from the bright crescent examined for light. None seen.”

Despite actively searching for most of my life, I can't say that the presence of the Ashen Light has ever suggested itself through the eyepiece of my telescope. Not once. And yet the mystery is so enticing that it became an obsession of four years' running by the time this book went to press.

My first encounter with the Ashen Light story came in the late 1980s when I was gifted a copy of James Muirden's *Amateur Astronomer's Handbook*, first published in 1974. Like nearly every other astronomy book I encountered as a kid, I read it from cover to cover because every aspect of astronomy seemed fascinating. On taking up the chapter on Venus, I came across a description of the Ashen Light that spanned only a few paragraphs, seemingly thrown in for completeness. Muirden introduced the Light with maybe the most succinct statement about it ever committed to print: “A phenomenon which has given rise to much dispute, even though its occurrence seems established by the weight of observation, is the occasional very faint luminosity of the dark side, aptly termed the *Ashen Light*.”

I'm still taken aback by those words. How could anything seen by visual observers using small telescopes for so long be controversial? By the time I read Muirden, humans had not only sent spacecraft to Venus, but they even managed to land a few on its hellish surface. It didn't make sense that something might be going on in the atmosphere of Venus that was powerful enough to produce light observable from Earth, and yet there was not so much as a single photograph that objectively demonstrated its existence. Muirden doesn't sound like much of a skeptic, deferring to the weight of centuries of reports by reliable observers. Instead, he probed at the edges of what might be a plausible physical explanation:

What is the Ashen Light? We do not know and can therefore only theorize, but it seems possible that it could be caused by intense auroras in Venus' atmosphere. We must remember that Venus is relatively close to the sun, and so receives much more radiation than does the earth. If Ashen Light sightings could be tied in with solar activity, the evidence would be conclusive.¹

Starting from a belief that the phenomenology of the Ashen Light is the first and best source of information that leads to informed speculation about

¹Muirden, 167–168.

its cause, I started my own quest to understand the subject by collecting as many descriptions of sightings of the Light as possible. Two years of searching yielded nearly 500 individual published reports spanning some three centuries. Combing through those observations and noticing certain patterns and repeated themes was the genesis of this book, as was finding out (to my surprise) that no such work already existed.

The project led me to dip a toe into original research on the subject, to consider what other areas of observational astronomy remain incompletely explored by amateurs and professionals alike, and to gain (and in short order, to lose) a friend of unimpeachable expertise in this field, whose parting words to me were to “make [this book] popular and stimulating to thought; otherwise many will glance at it then walk away thinking they know it all.”

At the end of this work, I come to a few broad conclusions about the Ashen Light and what it says about us as fully fallible human beings.

First, the human eye and brain are, as a system for detecting and processing the signals of very faint light, vastly underrated in their efficacy. By the first half of the twentieth century, as astronomy was overtaken by astrophysics as the more princely of the disciplines during the ramp-up of research spending fueled by the post-war economic boom, the photographic process displaced visual observations as the more reliable recording medium. At the same time, the push to construct ever-larger telescopes demanded technology that could wrest from the universe the secrets encoded in the steady arrival of cosmic photons on Earth, extracting every drop of information possible from every particle of light, some of which required billions of years to even reach our planet. Digital detectors, with much higher efficiency, in turn fully displaced the best photographic emulsions by the dawn of the new century. Visual observing was relegated to a pastime of amateur astronomers.

Second, the ways in which our senses couple to both memory and logic result in the firm belief in the objective reality of what those senses tell us about the world: at some level, seeing really *is* believing. It can be argued that visual impressions are too impermanent and too imprecise to be considered reliable, while imaging processes are the only means of achieving the objectivity that science demands. Yet to discard the careful records of eyewitnesses is to downplay billions of years of evolution by natural selection that has given humans tremendous sensory capabilities. Our eyes are sensitive to a dynamic contrast range of light comprising some twenty stops, or a ratio of a million to one. But they are coupled to brains, incredibly complex organs that also give us the credulity of superstition, a territoriality that sorts us into warring tribes, and the tendency to follow leaders blindly that has brought our species to the edge of obliteration and back in just the past century. Humans are often

led to firm belief in the objective existence of things that very clearly never were, through observations of the world that left vivid memories and deep impressions. Our faith in the reality of our perceptions of the world, though devout, does not prevent us from being completely wrong.

Finally, while remaining formally agnostic about the existence of the Ashen Light—much less any specific explanation for it, if real—I believe the eyewitnesses throughout history who reported seeing it. I think they were reasonably convinced of the authenticity of what their eyes and brains told them about the information their telescopes collected when pointed toward Venus. At the same time, the prospect of a definitive explanation that will satisfy every skeptic seems dimmer than ever. Perhaps someone in the future will yet produce the unassailable evidence that either finally establishes or disproves the Ashen Light as a real, physical phenomenon. In either case, we would learn something important about human perception from simply knowing the right answer. And while this book certainly won't be the last word on the subject, I hope it is seen as helpful in collecting together in one place as much of the evidence for and against the Ashen Light as one author can.

So with that, a great story about the planet Venus begins with an equally great story about the planet Mars. And perhaps the greatest misapprehension in the history of astronomy began with an unfortunately bad translation of a single Italian word.