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Earth's Sky: Star Names and Their Stories

The Etymology and Mythology of the Stars

Aira Astralis

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Introduction

Look up at the night sky on a clear, dark evening and you are seeing what our ancestors saw: thousands of pinpricks of light, scattered in patterns that every human culture has tried to make sense of. Somewhere among them burns a star that a Babylonian priest knew by name, that an Arab navigator steered his ship by, and that today appears in a catalogue maintained by the International Astronomical Union. Star names are among the oldest continuous pieces of human knowledge we possess. They are older than most languages still spoken, older than every border on the map, and they have survived because they were useful, to farmers marking the seasons, to sailors crossing open water, to poets looking for heroes in the dark.

This book is about those names: where they came from, how they traveled between cultures, how science gradually systematized them, and how they are managed today. It is a story with an unusual cast. Desert astronomers who measured the sky with instruments made of wood and stone transcribed star names into Arabic, giving us words like Aldebaran, Vega, Altair, and Betelgeuse. Greek mathematicians placed those stars in a geometrical framework that still underpins our star charts. Renaissance printmakers invented a numbering system that let astronomers discuss any star in the sky even if it had no name at all. And in 2016, a working group of the International Astronomical Union began the painstaking job of deciding, once and for all, which traditional names count as official.

There is a common assumption that stars have names the way cities do, with every one carrying a proper label. The reality is more interesting. Of the millions of stars astronomers have catalogued, only a few hundred carry proper names in widespread use, and only a fraction of those have been formally approved. The rest are known by designations, combinations of letters and numbers drawn from the catalogues in which they were recorded. A star may bear an ancient Arabic name, a Bayer Greek letter, a Flamsteed number, a Hipparcos catalogue number, and a string of coordinates, all at once, and all correctly. Understanding how these systems interlock is the key to understanding how astronomers, historians, and navigators all talk about the same sky.

The book begins with the discovery of star names in the oldest sense: how early civilizations first attached words to the brightest lights, and how those words were recorded, translated, and passed down through millennia of manuscripts. It then explains the underlying systems, the constellations that frame the names, the designation schemes that name the nameless, and the naming conventions that modern astronomy applies to newly discovered

objects. Later chapters tour the great naming traditions of Arabic, Greek, and Latin astronomy, walk through the stories of famous named stars one by one, and examine how names are researched, standardized, and occasionally fought over.

Because star names sit at the intersection of science and culture, they carry puzzles that pure astronomy does not. A name that is "wrong" historically may still be the one everyone uses. A name beloved by tradition may belong to the wrong star. Commercial companies will sell you the right to "name" a star, and the International Astronomical Union will not recognize the transaction at all. The final chapters take up these challenges, the open questions that surround them, and the future of naming in an era when astronomers catalogue stars by the billion and the old sky of named lights has become a small, treasured corner of a much larger universe.

Chapter 1: The Discovery of Star Names and Their Stories

The oldest star names we can recover are older than writing itself. When humans first began recording ideas (on clay tablets in Mesopotamia, on papyrus in Egypt, on oracle bones in China) the sky already had names in it. The very fact that star names appear in some of the earliest written documents anywhere suggests they were among the first things people wanted to write down. Star names were not decoration. They were infrastructure: a way to time the planting season, a way to navigate a featureless sea, a way to hold a culture's stories in place against the turning year.

Mesopotamia is where the documented story begins. Sumerian and Babylonian scribes compiled star lists on clay tablets as early as the third millennium BCE, pairing constellations with deities and fixing the heliacal rising of key stars to the calendar. The MUL.APIN tablets, compiled around 1000 BCE from observations made over centuries, list dozens of stars and constellations along with their rising and setting dates. The Babylonian zodiac (the band of twelve signs we still use) descends from this tradition, and several Greek constellation figures are now understood to have Mesopotamian ancestors whose names were translated rather than invented. Star names, from their very beginning, moved between languages by translation and borrowing.

Egypt added its own layer. Egyptian astronomy tied stars to the calendar of the Nile flood and to the journey of the dead through the night sky. The pyramids contain shafts aligned toward significant stars, and coffin lids bear star charts mapping the "imperishable stars" that never set. Egyptian star names were religious and practical at once, part of a cosmic order that the calendar, the temple, and the afterlife all depended on.

But the tradition that most directly shaped the names in tonight's sky came later. In the second century CE, Claudius Ptolemy of Alexandria compiled the Almagest, a thirteen-book mathematical astronomy that listed just over a thousand stars, organized into forty-eight constellations, with positions given in ecliptic coordinates and magnitudes estimated by eye. The Almagest drew on the work of Hipparchus and on centuries of Greek and Babylonian observation. For nearly fifteen hundred years, it was the authoritative star catalogue of the Western and Islamic worlds. Most of the forty-eight Ptolemaic constellations survive with their Greek identities intact (Orion, Cassiopeia, Perseus, Andromeda) and the descriptive phrases Ptolemy used for individual stars became, through translation and abbreviation, the proper names we still

use.

The Arabic centuries are the reason so many star names sound the way they do. From the eighth century onward, astronomers across the Islamic world translated Ptolemy into Arabic, refined his measurements, and built observatories from Baghdad to Samarkand. Working in Arabic, they described stars by their position within a constellation figure ("the hand," "the shoulder," "the follower," "the reddish one." When those Arabic descriptions were later translated into Latin in medieval Europe, many of them were mistaken for proper names and transcribed directly. Aldebaran comes from al-dabaran, "the follower," because it rises after the Pleiades. Vega comes from a mistranscription of al-nasr al-waqi, "the swooping eagle." Altair is al-ta'ir, "the flying eagle," the phrase's ending worn away by centuries of use in European mouths. Betelgeuse, Rigel, Algol, Deneb, Fomalhaut) the brightest region of the winter sky reads like a page from an Arabic dictionary, because that is effectively what it is.

The European astronomers who inherited these names did something new: they made the sky systematic. In 1603, Johann Bayer published Uranometria, the first star atlas to cover the entire celestial sphere, and introduced the convention we still use, Greek letters assigned to stars within each constellation, roughly in order of brightness, combined with the constellation's Latin genitive: Alpha Centauri, Beta Orionis. Bayer's letters were the first standardized designations, a naming system that extended to stars no tradition had ever bothered to name. John Flamsteed, the first Astronomer Royal, added numbers in his catalogue published posthumously in 1725, 61 Cygni, 51 Pegasi, and by the eighteenth century astronomers could refer to any star in the sky by letter, number, or position, whether or not it had a story.

The system needed a referee, and in 1919 it got one. The International

Astronomical Union was founded to standardize astronomical nomenclature, units, constants, and names, and its first great task was the sky itself. In 1922 the IAU officially adopted a list of 88 constellations with standardized three-letter abbreviations, and in 1928-1930, Eugene Delporte drew the boundaries between them so that every point in the sky, and therefore every star, belonged to exactly one constellation. The boundaries took effect in 1930. From that moment, a star's constellation was not a matter of tradition or artistic judgment but of coordinate geometry, and Bayer and Flamsteed designations, which reference the constellation, finally rested on a fixed foundation.

With the constellations settled, the IAU turned to the names of individual stars, and found chaos. Hundreds of traditional names circulated with variant

spellings; some names were applied to the wrong stars; some belonged to stars that had been misidentified in translations centuries earlier. In July 2016 the IAU established the Working Group on Star Names (WGSN) to catalog traditional star names, decide their correct forms and their correct stars, and approve them for official use. The WGSN's first bulletin, dated July 2016, included a table of 125 stars comprising the first two batches of names approved, on 30 June and 20 July 2016.

Its second bulletin, dated November 2016, listed a further 102 stars, among them the approved names for the brightest components of familiar double stars. The group then settled into a steady cadence: further batches were approved on 1 February 2017 and in the months that followed, expanding the list to include stars too faint for tradition to have noticed, many of them bearing names from astronomical history instead.

The naming net widened again in December 2019, when the IAU approved the proper names of 112 exoplanets and their host stars in a global public naming campaign (the first time stars outside the historical naked-eye sky received official proper names. The list has kept growing: 19 additional star names were approved in 2024, and 40 in 2025. As of August 2026, the running total of IAU-approved star names stands at 626. Every record in the IAU Catalogue of Star Names carries the name, its origin and meaning, the star it belongs to, and the date of approval) the first time in human history that the question "what is this star called?" has had a single, citable, authoritative answer.

What the modern catalogue records for each name is worth spelling out, because it defines what an official star name now is. An entry in the IAU Catalogue of Star Names gives the approved spelling, the star's designation, its celestial coordinates, and (the part that makes it a historical document as much as a scientific one) the name's language of origin, its literal meaning, and the tradition that transmitted it. The catalogue therefore answers three questions at once: how do we spell it, which star is it, and where did the word come from. No earlier era could answer all three with authority. Ptolemy could point at the star but not fix the spelling of its later Arabic name; the Renaissance atlases could fix spellings but not verify origins; and the tradition itself carried meanings that had been lost in translation for centuries. The discovery of star names, in the modern sense, is the completion of that record: the moment the sky's oldest vocabulary became a fully documented dataset.

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ABOUT THE AUTHOR

Aira Astralis is a science writer specializing in astronomy and space exploration. Her work spans the full breadth of humanity's relationship with the cosmos -- from the earliest naked-eye observations to the engineering marvels of modern space missions.

Her books are built on a foundation of primary sources: peer-reviewed research, mission archives, and direct engagement with the scientific community. She writes for readers who want to understand not just what we know about the universe, but how we came to know it.

She believes that the most important frontier is not out there but in the gap between what scientists discover and what the public understands. Her books exist to close that gap.