

Cassiopeia

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Cassiopeia

Cassiopeia is five bright stars in a zigzag, unmistakable as a **W** or an **M** depending on the hour, sitting almost directly opposite the Big Dipper across the pole from [Ursa Major](#). It is one of the easiest circumpolar figures to pick out from Central Ohio: bright, compact, and — because it sits across the pole from the Dipper — highest and easiest to see on autumn and winter evenings, exactly the season when the Dipper itself has swung down low toward the northern horizon.

Finding it

Find Polaris first (see [Ursa Minor](#)), then look for five stars of similar brightness roughly the same distance from Polaris as the Big Dipper's bowl, on the opposite side. The zigzag itself — Caph, Schedar, Gamma Cassiopeiae, Ruchbah, Segin, in that order — is the whole constellation; there is no dimmer supporting structure to hunt for the way there is with [Draco](#).

Cassiopeia is comfortably circumpolar from Columbus. Every star on this chart sits at declination 56° or higher, well clear of the roughly 50° threshold that applies at 40°N (see [Ursa Major](#) for how that threshold is worked out).

The stars

RA and Dec below are J2000, matching the values the site's own chart is built from.

Star	RA (h)	Dec (°)	Ma g	Dista nce	Spectral type	Name meaning
Caph (?)	0.1 53	59.1 5	2.2 7	54.7 ly	F2 III, white giant	Arabic <i>al-kaff al-khadib</i> , "the stained hand" — Arab tradition read Cassiopeia's stars as a hennaed hand
Schedar (?)	0.6 75	56.5 4	2.2 4	228 ly	K0 IIIa, orange giant	Arabic <i>al-sadr</i> , "the breast"
Gamma Cas	0.9 45	60.7 2	2.1 5	~550 ly	B0.5 IVe, blue giant	Chinese <i>Tsih</i> ("the whip"); nicknamed "Navi" by astronaut Gus Grissom, his middle name spelled backward
Ruchbah (?)	1.4 30	60.2 4	2.6 8	99.4 ly	A5 V, blue-white dwarf	Arabic <i>rukba</i> , "the knee"
Segin (?)	1.9 07	63.6 7	3.3 5	~412 ly	B3, blue giant	Likely a garbled transcription of <i>Seginus</i> , the traditional name of an unrelated star in Boötes

Gamma Cassiopeiae is the central, unnamed star of the W and the strangest of the five: an eruptive variable that can swing between magnitude 1.6 and 3.0 over years to decades as it periodically sheds gas from its equator, fast enough to be spinning near the point of flying apart. It is the prototype of its own class, the "Gamma Cassiopeiae variables." Ruchbah is a slower, steadier variable — an eclipsing binary that dims by a few hundredths of a magnitude every 759 days as one star passes in front of the other. Caph pulses on a much faster clock, a Delta Scuti variable brightening and dimming slightly every two and a half hours.

The W as a clock

Cassiopeia never sets from Columbus, and it never stops turning: like every circumpolar figure it completes

one full circuit of Polaris every 23 hours 56 minutes — a sidereal day, four minutes shorter than the ordinary solar day. That difference is why the W flips to an M and back again as the night and the year go on, and why the same orientation returns about four minutes earlier each successive night. Before printed almanacs were common, the position of Cassiopeia's zigzag around the pole doubled as a rough clock and calendar in one — read the tilt of the W, and you had a decent guess at the hour.

Myth and history

The Greek story is a package deal with [Draco](#)'s neighbors Perseus and Andromeda. **Cassiopeia**, queen of Aethiopia, boasted that she — or her daughter Andromeda, depending on the telling — was more beautiful than the Nereids, the sea nymphs who attended Poseidon's court. Poseidon, insulted, sent the sea monster Cetus to ravage the coast; an oracle demanded Andromeda be chained to a rock as a sacrifice, and she was saved only when Perseus arrived, fresh from killing Medusa, and turned Cetus to stone with the Gorgon's severed head. Cassiopeia's punishment for the original boast was to be bound to her throne and set in the sky, where — because the constellation is circumpolar — she spends part of every night's circuit of the pole hanging upside down. This is the standard telling preserved in the constellation-myth compilations attributed to Eratosthenes and to Hyginus.

Arabic astronomers, working from Ptolemy's *Almagest*, called the same stars **Dhat al-Kursiyy**, "the woman with the throne" — recorded in the 10th-century astronomer al-Sufi's *Book of Fixed Stars* (c. 964 CE), an Arabic revision of Ptolemy's catalogue that fixed many of the star names still used today, including Schedar, Caph, and Ruchbah listed above.

Tycho's supernova and Cassiopeia A

On 11 November 1572, the Danish astronomer **Tycho Brahe** noticed a star in Cassiopeia bright enough to rival Venus and visible in daylight — a "Stella Nova," a new star, the term that gave English the word *nova*. It stayed visible to the naked eye for about eighteen months, slowly fading through the colors astronomers now associate with a cooling supernova remnant. What made Tycho's observation matter beyond its brightness was his measurement: he found no detectable parallax, meaning the new star showed no shift in position from different points on Earth's surface, and therefore had to lie among the fixed stars rather than somewhere closer, in the sublunary realm where Aristotelian cosmology said all change was supposed to happen. A star appearing and changing brightness far beyond the Moon was, in that framework, not supposed to be possible. Tycho's careful measurement of an event the old model said could not occur is one of the pieces of evidence historians of science point to when they describe the slow collapse of the idea that the heavens beyond the Moon were perfect and unchanging.

Cassiopeia holds a second, unrelated supernova remnant: **Cassiopeia A**, the brightest radio source in the sky outside the Sun, discovered in 1947 by Martin Ryle and Francis Graham-Smith at Cambridge and optically identified with a faint nebulous shell in 1950. Working backward from its expansion rate, astronomers date the explosion that produced it to roughly 1670–1680 — a full century after Tycho's star, and a different event entirely, even though both remnants sit in the same constellation. Whether anyone actually saw this second explosion is unresolved: English astronomer John Flamsteed logged a 6th-magnitude star, "3 Cassiopeiae," on 16 August 1680, close to Cas A's position, in a catalogue published posthumously in 1725 — but the recorded position is off by about ten arcminutes, more than Flamsteed's usual precision, and no star has been seen there since. Historians treat it as a plausible but

unconfirmed candidate rather than a documented sighting. (The commonly repeated claim that this was "the last supernova in the Milky Way visible to the naked eye" should be treated with caution: that title is more conventionally given to Kepler's Supernova of 1604, which was unambiguously observed and recorded across multiple continents.)

Deep sky

Object	Type	Magnitude	Distance	Note
M52	Open cluster	7.3	~4,600 ly	Compact and rich; resolves into individual stars in a small telescope.
M103	Open cluster	7.4	~10,000 ly	One of the more distant Messier open clusters, correspondingly small and tight in a telescope.
NGC 457 (Owl / ET Cluster)	Open cluster	6.4	~7,900 ly	Two bright stars form the "eyes," with fainter members outlining "wings" — brighter than either Messier cluster in this constellation.
NGC 281 (Pacman Nebula)	Emission nebula	7.4	~9,200 ly	A star-forming region near Schedar; needs a nebula filter or long exposure to show the shape that gives it the name.
NGC 7635 (Bubble Nebula)	Emission nebula	~10	~7,100–11,000 ly	A stellar wind carving a shell into surrounding gas; a challenging visual target, a common astrophotography one.
Cassiopeia A	Supernova remnant	—	~11,000 ly	Not visible in any telescope at optical wavelengths in any meaningful sense; studied by radio and X-ray observatories, not by eye.

Key dates

Date	Event
c. 150 CE	Ptolemy catalogues Cassiopeia among the 48 constellations in the <i>Almagest</i> .
c. 964 CE	Al-Sufi's <i>Book of Fixed Stars</i> records the Arabic star names still used for Cassiopeia today.
11 November 1572	Tycho Brahe observes SN 1572, "Stella Nova," in Cassiopeia.
16 August 1680 (disputed)	Flamsteed logs "3 Cassiopeiae," a possible but unconfirmed sighting of the star that became Cassiopeia A.
1930	The IAU fixes the modern constellation boundaries.
1947	Cassiopeia A is identified as the brightest radio source in the sky beyond the Sun.
1950	Cassiopeia A is identified optically with a faint nebulous remnant.

Related

- [Ursa Major](#) — sits opposite Cassiopeia across the pole; when one is low, the other rides high.
- [Ursa Minor](#) — Polaris, the pivot both this constellation and the Dipper turn around.

- [Draco](#) — the third of the year-round circumpolar landmarks visible from Columbus.