

Sagittarius

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Sagittarius

This is the constellation; [Sagittarius the zodiac sign](#) is the 30-degree calendar wedge that has drifted about 24 degrees away from it, so the Sun doesn't actually stand in front of these stars until mid-December, near the end of tropical Sagittarius. The figure is an archer, usually drawn as a centaur with the bow drawn back, but almost nobody finds it that way from the ground. What jumps out first is the **Teapot**: eight of its brighter stars trace a near-perfect kettle shape, with a spout, a lid, a handle and a body, and it's the easiest way into the constellation on a real night sky.

Finding it

Find Scorpius first, low in the south on a summer evening, and look just to its east (left): the Teapot sits right where the scorpion's tail leaves off, in the same low stretch of sky. Sagittarius is a summer constellation from Ohio, prominent roughly July through September and highest due south — again, not very high — around August. At Columbus's latitude, about 40°N, the brightest of the bow stars, Kaus Australis, tops out around 16° above the southern horizon; the rest of the pot climbs a bit higher, 20° to 25°. Like Scorpius, it wants a clear, open view south and a dark sky, though it doesn't fall away as badly as Scorpius's sting does — nothing in the Teapot itself sits as far south as the base of Scorpius's tail.

The shape: **Alnasl** marks the tip of the spout; **Kaus Media**, **Kaus Australis**, **Ascella** and **Phi Sagittarii** form the body; **Kaus Borealis** is the point of the lid; **Nunki** and **Tau Sagittarii** form the handle. On an exceptionally dark, moonless night the Milky Way appears to rise out of the spout like steam — a fair description, since the spout points almost directly at the centre of the galaxy.

The stars

Star	Bayer	RA (h)	Dec (°)	Magnitude	Distance	Spectral type	Name
Alnasl	α ² Sgr	18.097	-30.42	2.99	~106 ly	K0 III	Arabic, "the arrowhead"
Kaus Media	β Sgr	18.350	-29.83	2.70	~348 ly	K3 III	Arabic/Latin mix, "middle of the bow"
Kaus Australis	γ Sgr	18.403	-34.38	1.85	~143 ly	B9 IV (chemically peculiar)	Arabic/Latin mix, "southern bow"
Kaus Borealis	δ Sgr	18.466	-25.42	2.81	~78 ly	K1 III	Arabic/Latin mix, "northern bow"
Phi Sagittarii	ε Sgr	18.762	-26.99	3.17	~239 ly	B8.5 III	—
Nunki	ζ Sgr	18.921	-26.30	2.05	~225 ly	B2.5 V	Sumerian <i>NUNKI</i> , "Divine Place of the Earth" — a name for the city of Eridu

Tau Sagittarii	? Sg r	19. 115	-27. 67	3. 32	~122 ly	K1 III	—
Ascella	? Sg r	19. 044	-29. 88	2. 59	~88 ly	A2.5 Va (triple system)	Late Latin, "armpit"

Nunki's Babylonian pedigree is real but not a straight line. NUNKI, "Divine Place of the Earth," was a Sumerian name attached to a star in the tradition behind MUL.APIN — but the star it originally marked may have been Canopus, not this one. Nineteenth-century antiquarians recovered the cuneiform name from the record and reattached it here; the modern usage is a scholarly revival rather than an unbroken naming tradition, which is worth saying plainly rather than repeating the name as if it had simply survived intact for four thousand years.

Myth and history

The archer is Babylonian before he is Greek, and the change is unusually well documented in stone.

MUL.PA.BIL.SAG names a real god with a real cult, not a literary invention: **Pabilsag**, tied to the city of Isin and to the healing goddess Ninisina. On *kudurru*, the carved boundary stones used to record land grants, Pabilsag appears from around 1200 BCE as a winged, two-headed archer with a horse's body and a scorpion's sting for a tail — nearly every strange feature of the later centaur-archer is already present in the Mesopotamian original. The fuller version of this history, including the Greek identification with Croton rather than the popular but mistaken Chiron, is on the sign's page, [Sagittarius](#).

Sagittarius points at something real, which is probably why an archer aimed at this particular patch of sky was worth arguing over for four thousand years: the densest part of the Milky Way, and the centre of the galaxy itself, sit almost exactly where the Teapot's spout is pointed.

Deep sky

Sagittarius is the richest constellation in the sky for a reason that has nothing to do with Sagittarius: it happens to be the direction of the galactic centre, so every kind of object the Milky Way makes shows up here in bulk.

Three bright emission nebulae sit close together just above the Teapot's spout. The **Lagoon Nebula (M8)**, roughly 4,000 to 5,000 light-years away, is one of only two star-forming regions faintly visible to the naked eye from mid-northern latitudes (the Orion Nebula is the other), and was already recorded with an early telescope by Giovanni Hodierna in 1654. The **Trifid Nebula (M20)**, about 4,100 light-years out, gets its name — "three-lobed" — from dark lanes of dust that appear to cut its glowing gas into three sections; Messier catalogued it on 5 June 1764. The **Omega Nebula (M17)**, also called the Swan or Horseshoe Nebula for its shape, sits roughly 5,000 to 6,000 light-years away.

Beyond the nebulae, the star clouds thicken directly into the galactic bulge. The **Large Sagittarius Star Cloud**, rising in an arc just above the spout, is the densest region of the Milky Way visible to the unaided eye, and the **Small Sagittarius Star Cloud (M24)** is a genuine window through the galaxy's own dust — binoculars pointed there are looking tens of thousands of light-years down a relatively clear channel toward the core.

The core itself is here too, though nothing marks it visually. **Sagittarius A**, the Milky Way's central supermassive black hole, sits about 27,000 light-years away in this direction, with a mass of roughly 4 million Suns. Harlow Shapley located the galaxy's centre toward Sagittarius in 1918, using the distribution of globular clusters; the compact radio source there was identified in 1974. Decades spent tracking the orbits of individual stars whipping around that invisible point — one of them completing a full orbit in about sixteen years — gave Reinhard Genzel and Andrea Ghez half of the 2020 Nobel Prize in Physics, for establishing that the object at the centre had to be a black hole and nothing else. In May 2022 the Event Horizon Telescope collaboration released the first direct image of Sagittarius A itself: a lopsided ring of light around a dark centre, the same technique and the same kind of picture as the 2019 image of M87*, four years and one galaxy apart.

Key dates

Date	Event
c. 1200–1000 BCE	Pabilsag appears as a winged archer on Kassite and later boundary stones.
c. 1000 BCE (<i>contested</i>)	MUL.APIN lists MUL.PA.BIL.SAG among the stars in the Moon's path.
c. 150 CE	Ptolemy catalogues Sagittarius in the <i>Almagest</i> .
1654 CE	Giovanni Hodierna records the Lagoon Nebula with an early telescope.
5 June 1764 CE	Charles Messier catalogues the Trifid Nebula, M20.
1918 CE	Harlow Shapley locates the centre of the Milky Way in the direction of Sagittarius.
1930 CE	The IAU adopts Delporte's boundaries, fixing Sagittarius's borders.
1974 CE	The compact radio source at the galactic centre, later named Sagittarius A*, is identified.
6 October 2020	Reinhard Genzel and Andrea Ghez share half the Nobel Prize in Physics for tracking stellar orbits around Sagittarius A*.
12 May 2022	The Event Horizon Telescope releases the first direct image of Sagittarius A*.

Related

- [Sagittarius \(the zodiac sign\)](#) — same figure, a calendar wedge about 24 degrees off these stars.
- [Scorpius](#) — the true neighbour, right where the tail ends.
- [Calendar](#)