

Sag A*

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Sagittarius: one of the largest Zodiac constellations of stars in the Southern Sky. She is known in English as the archer and often depicted as a Centaur holding a bow. So strong a visual from so minimal a collection of points. Sagittarius is not a true constellation of proximate stars. There are no true constellations. The stars themselves are often light-years apart in depth, the perception we lack when detecting points projected on a false dome.

To an alien civilization with the same inclinations as us, our Sun might appear part of a mythical collection of stars. The pattern in the image of Sagittarius threatening to pierce Scorpio with an arrow emerges only from our point-of-view, here on Earth. Our eyes, designed as they are for this planet under this Sun, can detect these particular stars unaided and we project our fantasies and fears and narratives on a stark and minimal plot of luminous points. I might be inclined to include other celestial bodies in our solar system as sharing our point of view on that collection of stars, but here we are and from there—on Mercury or Pluto and all bodies in between—we hear no replies to our pleas for contact. There appears to be no one else around the Sun, no one else who has evolved detectors of light embedded in their living flesh, and so no others in this system who seem inclined to name and mythologize those patterns. Maybe there are no other gooey, metabolizing, expelling, reproducing creatures at all in the Milky Way, or even the entire universe.

There may be star systems in the constellation Sagittarius which themselves bind planets. No inhabitants of those planets could conceivably see the arrangement of stars we have artificially mapped as a centaur with a bow. But maybe they look in our direction and find an equally implausible narrative to project on us, unaware that we are looking back at them.

Though astronomers disparage the numerology of astrology, we admire the constellations we can recognize, even from our ordinary lives, our unmagnified eyes, with feet in mud and grass, on hills or sandy grounds open to dark skies, desert mountains that are shrouded in the blackness. We've blanched in artificial light everywhere else humans have settled. The constellations provide shortcut directions for our searches into the universe that reach unreasonably far given our physical

limitations. In the direction of the constellation Sagittarius, far beyond the stars themselves—twenty-six thousand light-years away from Earth—is a supermassive black hole four million times the mass of the sun, lumbering in the center of our galaxy. We call it Sagittarius A*.

There are two stars in the constellation Sagittarius that are closely bound. They are separated by a distance twice that between the Earth and the Sun and orbit each other in less than an Earth year. They will slowly spiral together over the eons. They will likely die first in distensions and death throes that leave cores and remnants and debris, but not before the two supermassive black holes in the Milky Way and Andromeda merge within the next few billion years. When the black holes do merge, there will come a moment when, for the three-dimensional wells of uncertain depth—possibly as deep as universes—their event horizons touch, the inky darkness reminiscent of spilling pools until the storm in spacetime carries away all imperfections and a new gargantuan black hole emerges, flawless and quiet, in a new galaxy with new constellations. Staring into tangential wells, I imagine diving into waves in spacetime that transport me to a brutal demise with the questionable reward of my quantum particles' rebirth in a new universe contained within the confines of the lightless pool's perimeter, because black holes can be as small as a city from the outside, but as big as a universe on the inside.

Any surviving or burgeoning sentient beings in the future mega-galaxy will redraw the skies, connect new points of light, imagine new myths. Sagittarius will be gone. If the creatures are on the evolutionary trajectory that we are on, with the tragic flaws of humans, they may devise telescopes, celebrate with delirium their discovery of a black hole at the center of their ill-fated galaxy, and wonder on the longevity of their myths, their maps, their discoveries, their species.

They may imagine that this is all there is, or they may dream that there is an entire universe beyond the still skin of the horizon.