

One Good Target

With Some Other Sights Worth Seeing
While You're in the Neighborhood

October

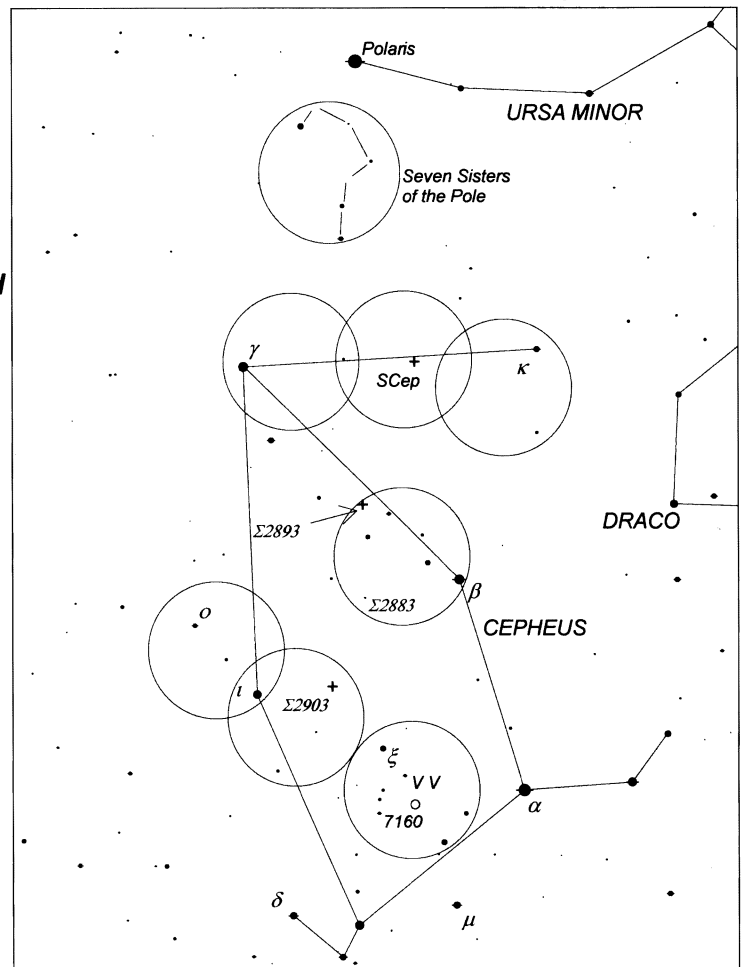
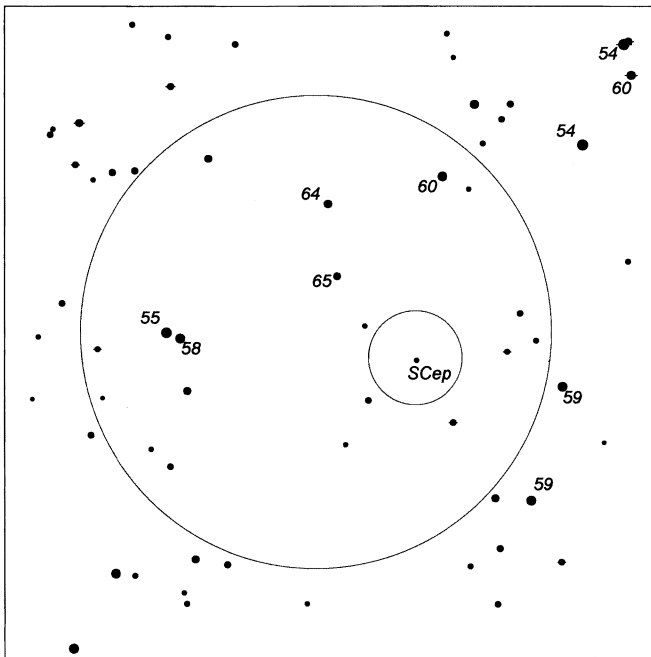
Treasures in the House of Cepheus:

a prototype short-period variable, a half-dozen colorful doubles,
a couple asterisms, a very large star, a future pole star,
a reptilian cluster, and the reddest star you'll ever see

When it comes to easy-to-draw constellation patterns, it doesn't get much simpler than the outline of Cepheus, forming the unadorned image of a steep-roofed stick-figure house with a long antenna protruding from the peak of its gable. We visited its marquee targets in September 2021 – Delta and Mu Cep, and the two-in-the-view pair NGC 6939 and 6946. This month, we'll focus on some of the constellation's lesser-known gems.

Right: this month's targets, 5° fields,
showing stars to mag 6

Below: 5° field centered on the midpoint between
 γ and κ Cep, and 1° field centered on S Cep,
both showing stars to mag 8 –
selected magnitudes shown, decimals omitted



We begin at **Beta (β) Cephei** (aka **Alfirk**), marking the upper right corner of the “first floor” of the house. Beta is the prototype of a class of very short period pulsating variables exhibiting small changes in brightness (up to 0.3 mag). It’s a blue-white subgiant whose brightness varies from 3.16 to 3.27 over a period of 4 hours 34 minutes – and a nice double, with a white mag 7.9 secondary 13 arcseconds from the variable primary star.

When placed at the edge of a 5° finderscope or binocular field as shown in the area view above, Beta marks the short handle of an upside-down **dipper-shaped asterism** extending to the NE and filling the field. Just beyond the dipper is double star **Struve (Σ) 2893**, a yellowish and bluish pair consisting of a mag 6.2 primary and 8.3 secondary separated by a generous 29 arcseconds. SE of the dipper, as if it had been spilled out of the dipper’s bowl, is a brighter double, **Struve (Σ) 2883**, comprising two bluish stars mag 5.6 and 7.6, separated by 15 arcsec.

Moving to the top of the house brings us to **Gamma (γ) Cephei** (aka **Errai**), a mag 3.2 orange dwarf that will be the northern Pole Star in 2000 years. Two finder fields west from Gamma we can see **Kappa (κ) Cephei**, an off-white + blue pair mag 4.4 + 8.4 separated by 7½ arcseconds. Just over midway between Gamma and Kappa is carbon star **S Cephei**, a Mira-type pulsating variable red giant sometimes called *The Stop Light* because of its strikingly deep red color. With a broad range of brightness extending from mag 7.4 to 12.9 over its 487 day period, it can be a difficult catch, but its consistently remarkable color makes it well worth the effort.

Above the house is another dipper-shaped asterism, again completely filling a 5° field. This one is often called **The Seven Sisters of the Pole** because its shape is vaguely reminiscent of The Pleiades (M45) in Taurus, and because it is located quite close to Polaris (Alpha [α] Ursae Minoris), the northern Pole Star.

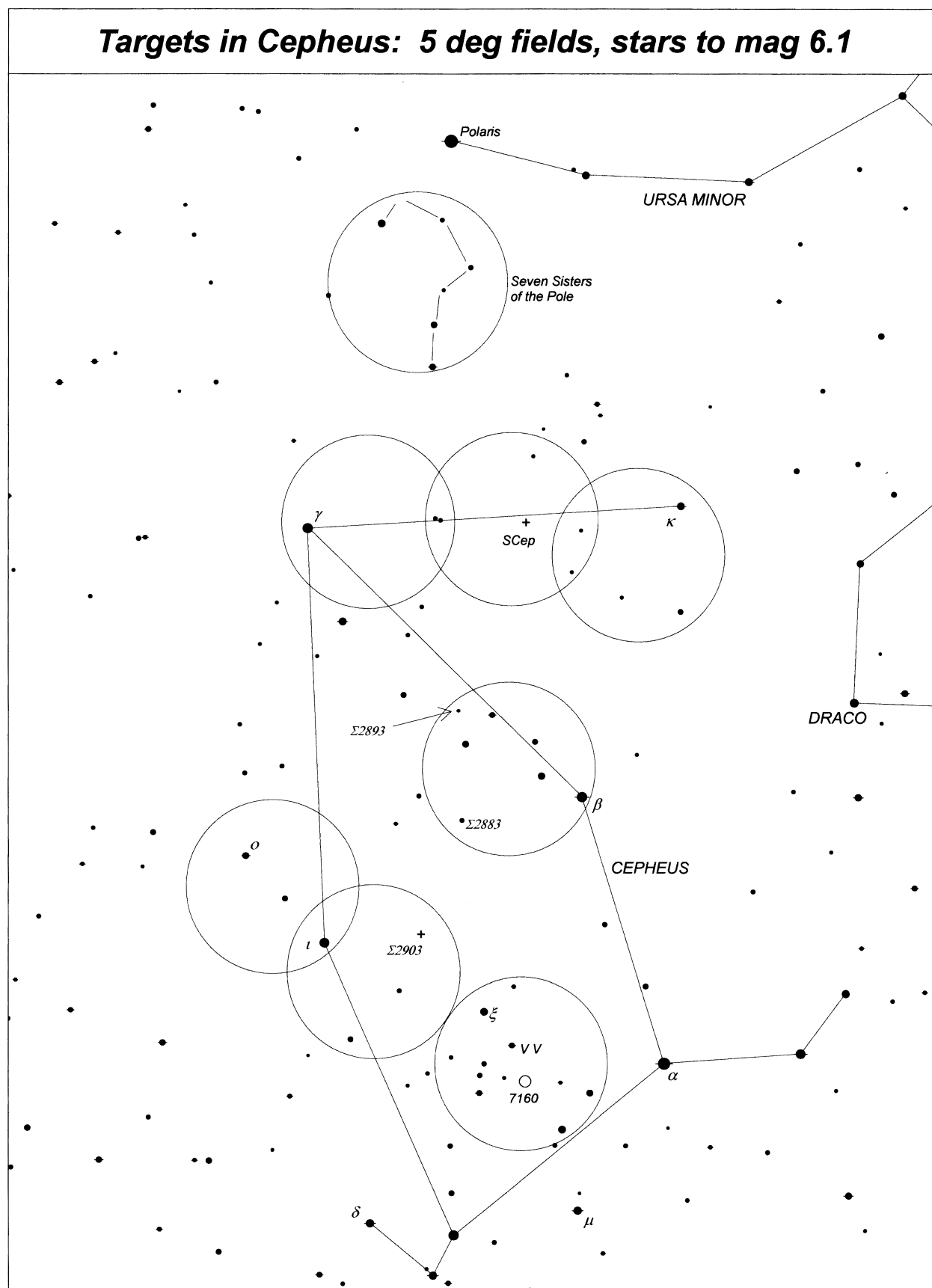
Iota (ι) Cephei, a mag 3.5 light orange giant, marks the upper left corner of the “first floor” of the house. With Iota at the SW edge of a 5° field as shown in the area view above, we can follow a straight line of bright stars to the NE to reach **Omicron (ο) Cephei**, a close (3½ arcsecond) yellow and blue-white pair with a mag 5.0 primary and 7.3 secondary. You’ll need to add some power to split this one – 125x to 150x should do it.

If you put Iota at the NE edge of a 5° field, it will form a large triangle with mag 5.2 and 5.5 stars, as shown in the area view. NW of the triangle is another double, **Struve (Σ) 2903**, a nicely-balanced “cat’s eyes” pair with two mag 6.7 stars separated by 4½ arcseconds. Although one star is yellowish and the other bluish, they both often look distinctly orange, especially in smaller scopes.

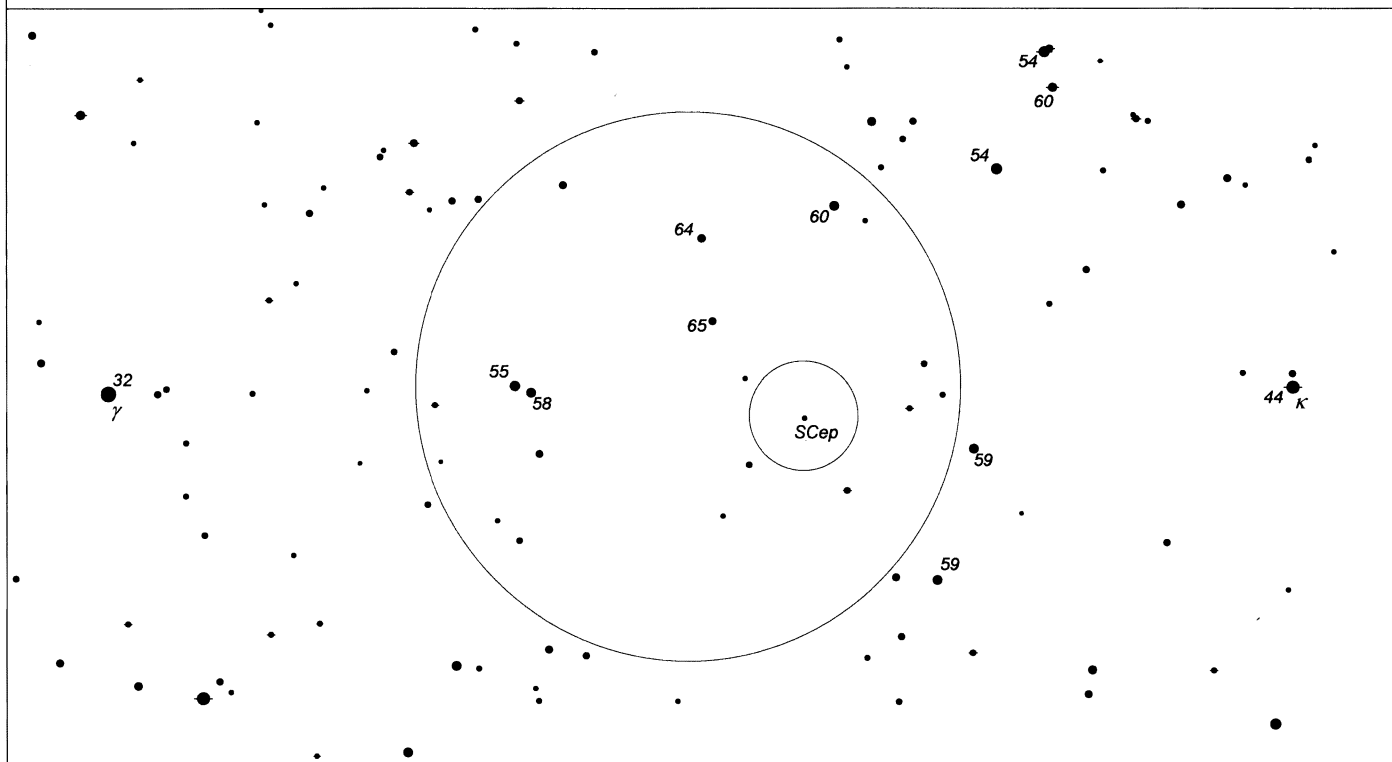
For our final targets, start at **Xi (ξ) Cephei** (aka **Kurhah**), at the very center of the square of stars outlining the “first floor” of the Cepheus house. Xi will be visible to the unaided eye at any reasonably dark site, and can usually be found even when invisible to the unaided eye in a 5° finder or binocular field centered on that square. Xi is a color-contrast pair consisting of a blue-white mag 4.4 primary and a yellow-white mag 6.5 secondary separated by 8 arcseconds. SW of Xi, towards the lower right corner of the house, is red-orange supergiant star **VV Cephei**, an Algol-type eclipsing binary whose brightness varies from mag 4.8 to 5.4 over a very long period (20 years 4 months). Its eclipses last 16 months – the most recent one ended in 2019. VV Cep makes most lists of “largest stars in the galaxy,” and while its actual size is debatable, it’s often described as being large enough to fill the orbit of Saturn. A little farther towards the edge of the field we’ll find **NGC 7160**, a mag 6.1 open cluster consisting of a dozen bright stars spanning a 7 arcminute field. The cluster resolves completely in any scope and is sometimes called *The Swimming Alligator*: a wide bright pair (its eyes) sits between a fainter pair (nostrils) and an arc of three stars that mark its body above the water and lead to four fainter (tail) stars that turn the arc into an S as the ‘gator slithers through the swamp – bringing us to a fitting spot to end tonight’s adventures in the house of Cepheus.

Rick Gering / October 2024

Note: space limitations made it impossible to print this month's charts with as much detail as I would have liked, so I have included a full-page copy of the area chart along with half-page copies of the S Cep finder (both correct-image and mirror-reversed versions), and recommend using these copies to hunt these targets in the field. – Rick Gering



**5 degree field centered on the midpoint from Gamma to Kappa Cep
and 1 degree field centered on S Cep - stars to mag 8 -
North at top - selected magnitudes shown, decimals omitted**



As above - mirror reversed

